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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,483	01/20/2004	Dominique Breider	10191/3533	2912

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EXAMINER

TRIEU, VAN THANH

ART UNIT PAPER NUMBER

2636

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/761,483

Applicant(s)

BREIDER ET AL.

Examiner

Van T. Trieu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/10/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-14, 15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by **Aziz** [US 5,907,400].

Regarding claim 1, the claimed method for measuring at least one test surface and a reference test surface, comprising: causing an interference measuring probe to emit a first measuring beam aligned with respect to the reference test surface (the interference microscope 40 includes a first measuring beam LR aligned with respect to the reference surface R, see Fig. 4, col. 4, lines 50-58); and emitting at least one second measuring beam that is aligned with respect to at least the at least one test surface (the second measuring beam LT aligned with respect to the test surface S, see Fig. 4, col. 4, lines 65-67 and col. 5, lines 1-3).

Regarding claim 2, the claimed splitting light beam (the beam splitter 38, see Fig. 4, col. 4, lines 65-67 and col. 5, lines 1-3).

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Regarding claim 3, the claimed first measuring beam has an optical path of a length that is identical with that of at least one second measuring beams (the LR and LT beams, see Fig. 1).

Regarding claim 4, the claimed at least one of the first measuring beam and the at least one second measuring beam is orthogonal to at least one of the at least one test surface and the reference test surface, see Fig. 4.

Regarding claim 5, the claimed in a measuring position of the interference measuring probe, focusing only one of the first measuring beam and the at least one second measuring beam on one of the test surface and the reference test surface (focus of the LR and LT beams, see Fig. 4).

Regarding claim 6, the claimed in a measuring position of the interference measuring probe, focusing at least two differently polarized measuring beams on different surfaces of the at least one test surface and the reference test surface (the different of LR and LT beams are used to measure on different of reference surface R and test surface S, see Fig. 4, col. 4, lines 32-67 and col. 5, lines 1-3).

Regarding claim 7, all the claimed subject matters are cited in respect to claim 6 above.

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Regarding claim 8, the claimed measuring an alignment of different internal rotational surfaces, which reads upon the interference microscope for mounting on a rotatable turret in parfocal condition, wherein all objectives mounted on the rotatable turret, see col. 3, lines 10-23.

Regarding claim 9, the apparatus claimed limitations are met by the method claim 1 above.

Regarding claim 10, all the claimed subject matters are cited in respect to claim 9 above, and including the reflecting prism (the beam splitter 38 reflects a portion of the light into two different beams LR and LT, see Fig. 4, col. 4, lines 65-67 and col. 5, lines 1-3).

Regarding claim 11, all the claimed subject matters are cited in respect to claims 3 and 9 above.

Regarding claim 12, all the claimed subject matters are cited in respect to claims 4 and 9 above.

Regarding claim 13, all the claimed subject matters are cited in respect to claims 5 and 9 above.

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Regarding claim 14, all the claimed subject matters are cited in respect to claims 6, 10 and 9 above.

Regarding claim 16, the claimed all the components used to form the first measuring beam and the at least one second measuring beam have an at least partially cylindrical, external form with an identical external diameter and are installed in a centering tube having a corresponding internal diameter, which reads upon the microscope commonly used with a tube lens with a specific reference focal length to form a magnified image of the sample at a fixed location in space, see Fig. 4, col. 2, lines 5-21 and col. 5, lines 4-15.

Regarding claim 17, all the claimed subject matters are cited in respect to claims 8 and 9 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Aziz** [US 5,907,400] in view of **Moslehi et al** [US 5,156,461].

Regarding claim 15, **Aziz** fails to disclose the device comprising an electronic shutter, wherein in one measuring position of the interference measuring probe, at least two measuring beams that are focused via the electronic shutter in a time-division multiplexer are focused on different surfaces of the at least one test surface and the reference test surface. However, **Aziz** teaches that the interference microscope for measuring surface roughness including tip/tilt adjustment, illumination and collection optics, turret, scanning mechanism, and camera all together rather than the case where these elements are fixed and the sample stage is adjusted, see col. 5, lines 32-38.

Moslehi et al suggests that a multi-point non-invasive, real time pyrometry-based 200 for simultaneously sensing semiconductor wafer surface roughness including light beams 224, semiconductor surface 22, beam splitter 20, a shutter and a processor computer 126, which includes a time-division multiplexer for measuring the surface roughness, see Figs. 7, 8 and 18, abstract, col. 9, lines 57-67, col. 10, lines 1-2, col. 11, lines 3-18 and col. 18, lines 37-65. Therefore, it would have been obvious to one skill in the art at the time the invention was made to implement the shutter and time-division

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multiplexer of **Moslehi et al** onto the camera of **Aziz** for reducing a plurality number of independent detectors/sensors for sensing of a surface roughness, see **Moshlehi et al**, col. 10, lines 43-49.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Aziz et al discloses a laser interferometer embedded into an interference microscope to precisely determine the in-focus position of the microscope objective's reference mirror. [US 6,545,761]

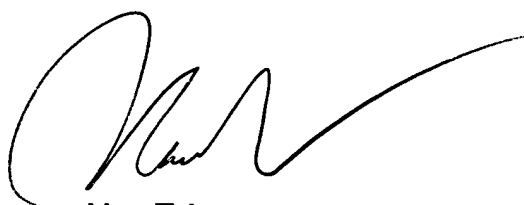
Hino et al discloses an optical surface roughness measuring device for measuring roughness of a surface of an object in a non-contacting manner. [US 4,905,311]

Ashida discloses a fine particle measuring method utilizing laser beams for forming the scattered lights to measure the surface roughness. [US 4,906,094]

4. Any inquiry concerning this communication or earlier communications from examiner should be directed to primary examiner **Van Trieu** whose telephone number is (571) 272-2972. The examiner can normally be reached on Mon-Fri from 7:00 AM to 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. **Jeffery Hofsass** can be reached on (571) 272-2981.

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A handwritten signature in black ink, appearing to read 'Van Trieu', with a large, sweeping flourish extending to the right.

Van Trieu
Primary Examiner
Date: 9/16/05